

ABSTRACT

It is an object of the present invention to provide a Raman amplifier capable of easily reducing the wavelength deviation of a Raman gain while suppressing system performance degradation, and an optical transmission system using such a Raman amplifier. To this end, the Raman amplifier of the present invention supplies, to an amplification medium, first pumping lights arranged at equal wavelength spacing in a signal light wavelength band, which is shifted to a shorter wavelength side in accordance with a Raman shift frequency, and second pumping lights arranged in a wavelength band on a shorter wavelength side and a longer wavelength side than a wavelength band of the first pumping lights, the wavelength and power of which are set so that peak wavelength spacing of the Raman gain in the signal light wavelength band is substantially equal to each other, to Raman amplifies a WDM signal light, and reduces the wavelength deviation of power of the WDM signal light by using a gain equalizer having the periodicity corresponding to the peak wavelength spacing of the Raman gain.